

Application No. 09/693,377
Amendment "B" dated June 22, 2005
Reply to Office Action mailed February 23, 2005

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-11. (Cancelled).

Claim 12. (Currently Amended) A transmission method in a base station for use in a CDMA mobile communication system for transmitting a signal of each of a plurality of channels included in each of a plurality of channel groups, the transmission method comprising the steps of:

spreading the signal by using an orthogonal code and a spreading code; and transmitting the spread signal,

wherein spreading codes for use in spreading signals of respective channel groups differ from each other,

orthogonal codes for use in spreading signals of respective channels in each channel group differ from each other,

channels of each channel group include a pilot channel,

the pilot channel is spread using an orthogonal code and a spreading code, and

a signal transmitted over the pilot channel undergoes data modulation by a known pattern

or does not undergo any data modulation.

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Claim 13. (Currently Amended) A transmission method in a base station for use in a CDMA mobile communication system for transmitting a signal of each of a plurality of channels included in each of a plurality of channel groups, the transmission method comprising the steps of:

spreading the signal by using an orthogonal code and a spreading code; and

transmitting the spread signal,

wherein spreading codes for use in spreading signals of respective channel groups differ from each other,

orthogonal codes for use in spreading signals of respective channels in each channel group differ from each other,

channels of the channel groups include a pilot channel,

the pilot channel is spread using an orthogonal code and a spreading code,

the step of transmitting transmits a signal of the pilot channel with a symbol rate higher than a minimum symbol rate defined in the CDMA mobile communication system, and

the signal transmitted over the pilot channel undergoes data modulation by a known pattern or does not undergo any data modulation.

Claim 14. (Previously Presented) The transmission method as claimed in claim 13, wherein the symbol rate higher than the minimum symbol rate is determined in accordance with a relationship between transmission power of each channel and channel capacity.

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Claim 15. (Currently Amended) A communication method for use in a CDMA mobile communication system comprising a base station for transmitting a signal of each of a plurality of channels included in each of a plurality of channel groups, and a mobile station for receiving the signal, the communication method comprising the steps of:

spreading, in the base station, the signal by using an orthogonal code and a spreading code;

transmitting, in the base station, the spread signal;

receiving, in the mobile station, signals including signals of the plurality of channels of the plurality of channel groups; and

measuring, in the mobile station, in each channel group, interference power of a channel other than a pilot channel by despreading the received signals by using a orthogonal code and a spreading code for use in spreading a signal of the pilot channel of the channel group,

wherein spreading codes for use in spreading signals of respective channel groups differ from each other,

orthogonal codes for use in spreading signals of respective channels in each channel group differ from each other,

channels of each channel group include a pilot channel,

the pilot channel is spread using an orthogonal code and a spreading code,

a signal transmitted over the pilot channel undergoes data modulation by a known pattern

or does not undergo any data modulation, and

the step of transmitting transmits a signal of a pilot channel only in one of the channel groups, and does not transmit a signal of a pilot channel in another channel group.

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Claim 16. (Currently Amended) A base station for use in a CDMA mobile communication system for transmitting a signal of each of a plurality of channels included in each of a plurality of channel groups, the base station comprising:

means for spreading the signal by using an orthogonal code and a spreading code; and

means for transmitting the spread signal,

wherewith spreading codes for use in spreading signals of respective channel groups differ from each other,

orthogonal codes for use in spreading signals of respective channels in each channel group differ from each other,

channels of each channel group include a pilot channel,

the pilot channel is spread using an orthogonal code and a spreading code, and

a signal transmitted over the pilot channel undergoes data modulation by a known pattern

or does not undergo any data modulation.

Claim 17. (Previously Presented) A CDMA mobile communication system comprising the base station as claimed in claim 16.

Claim 18. (Currently Amended) A base station for use in a CDMA mobile communication system for transmitting a signal of each of a plurality of channels included in each of a plurality of channel groups, the base station comprising:

means for spreading the signal by using an orthogonal code and a spreading code; and

means for transmitting the spread signal,

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wherein spreading codes for use in spreading signals of respective channel groups differ from each other,

orthogonal codes for use in spreading signals of respective channels in each channel group differ from each other,

channels of the channel groups include a pilot channel,

the pilot channel is spread using an orthogonal code and a spreading code,

the means for transmitting transmits a signal of the pilot channel with a symbol rate higher than a minimum symbol rate defined in the CDMA mobile communication system, and the signal transmitted over the pilot channel undergoes data modulation by a known pattern or does not undergo any data modulation.

Claim 19. (Previously Presented) The base station as claimed in claim 18, wherein the symbol rate higher than the minimum symbol rate is determined in accordance with a relationship between transmission power of each channel and channel capacity.

Claim 20. (Previously Presented) A CDMA mobile communication system comprising the base station as claimed in claim 18.

Claim 21. (Currently Amended) A CDMA mobile communication system comprising a base station for transmitting a signal of each of a plurality of channels included in each of a plurality of channel groups, and a mobile station for receiving the signal, wherein the base station comprises:

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means for spreading the signal by using an orthogonal code and a spreading code;
and

means for transmitting the spread signal, and

the mobile station comprises:

means for receiving signals including signals of the plurality of channels of the plurality of channel groups; and

means for measuring, in each channel group, interference power of a channel other than a pilot channel by despreading the received signals by using a orthogonal code and a spreading code for use in spreading a signal of the pilot channel of the channel group,

wherein spreading codes for use in spreading signals of respective channel groups differ from each other,

orthogonal codes for use in spreading signals of respective channels in each channel group differ from each other,

channels of each channel group include a pilot channel,

the pilot channel is spread using an orthogonal code and a spreading code,
a signal transmitted over the pilot channel undergoes data modulation by a known pattern or does not undergo any data modulation, and

the means for transmitting transmits a signal of a pilot channel only in one of the channel groups, and does not transmit a signal of a pilot channel in another channel group.

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Claim 22. (Currently Amended) A mobile station for use in a CDMA mobile communication system for receiving a signal of each of a plurality of channels included in each of a plurality of channel groups, the signal being spread by using a orthogonal code and a spreading code, spreading codes for use in spreading signals of respective channel groups differing from each other, orthogonal codes for use in spreading signals of respective channels in each channel group differing from each other, channels of each channel group including a pilot channel, the pilot channel being spread using an orthogonal code and a spreading code, the mobile station comprising:

means for receiving signals including signals of the plurality of channels of the plurality of channel groups; and

means for measuring, in each channel group, interference power of a channel other than a pilot channel by despreading the received signals by using an orthogonal code and a spreading code for use in spreading a signal of the pilot channel of the channel group,

wherein a signal transmitted over the pilot channel undergoes data modulation by a known pattern or does not undergo any data modulation.

Claim 23. (Previously Presented) The mobile station as claimed in claim 22, wherein the means for measuring interference power measures the interference power by using a symbol period of the pilot channel.